

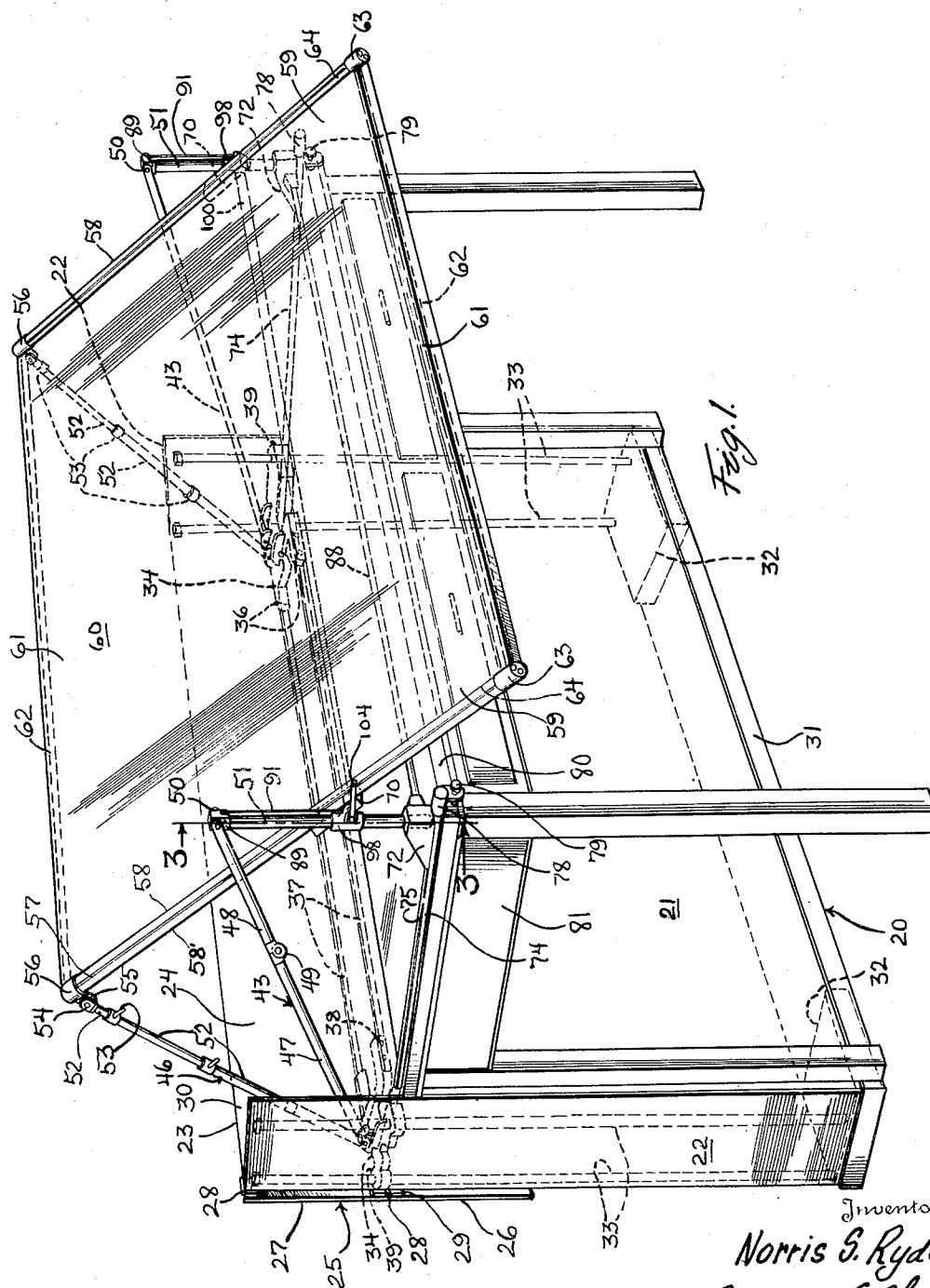
July 18, 1950

N. S. RYDER
DRAFTING TABLE

2,515,474

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4 Sheets-Sheet 1



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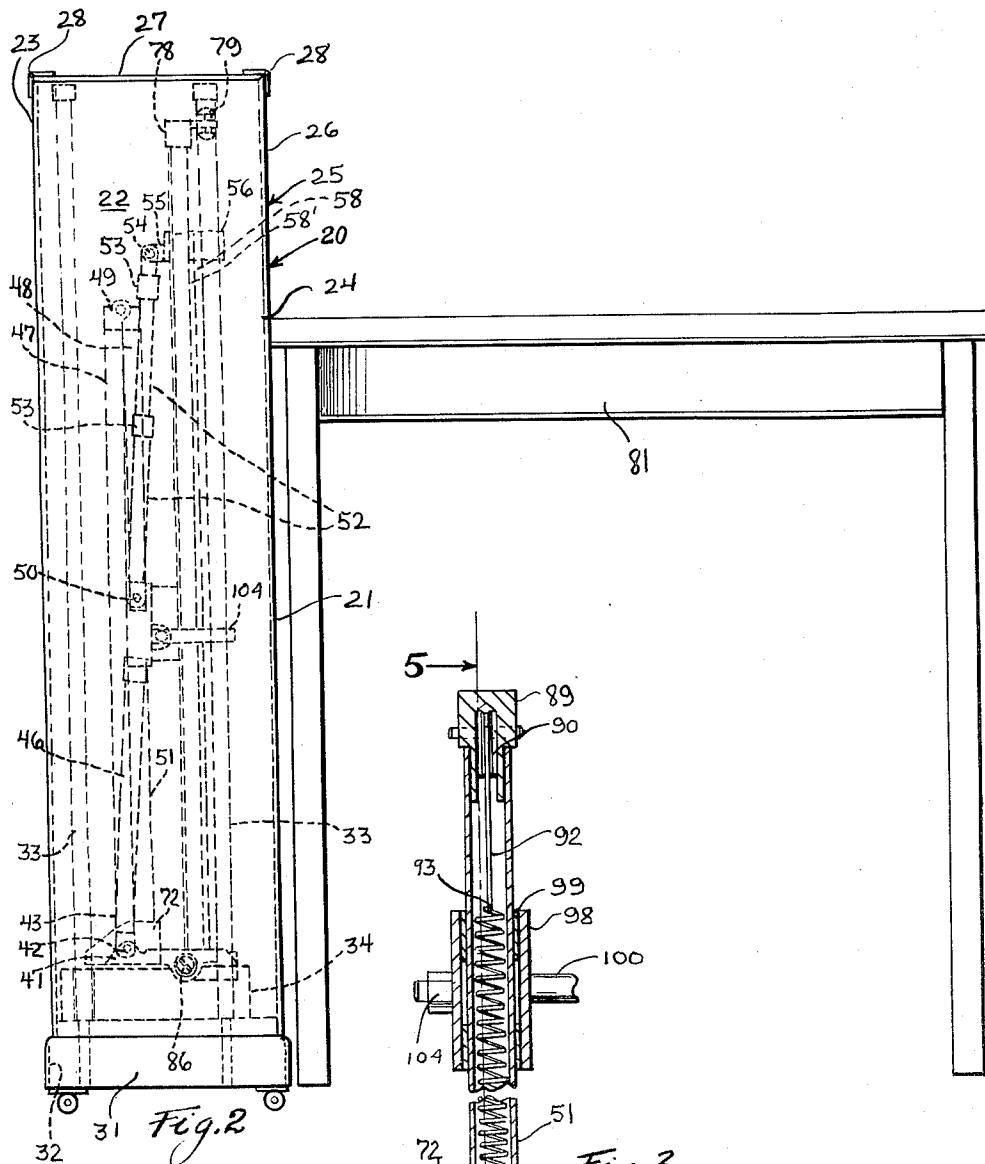
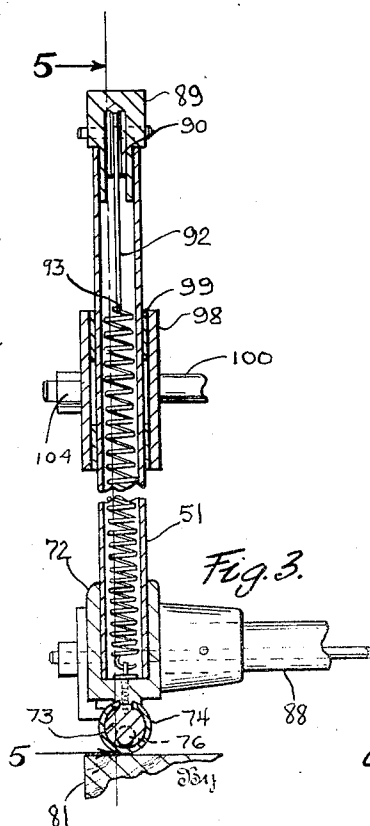
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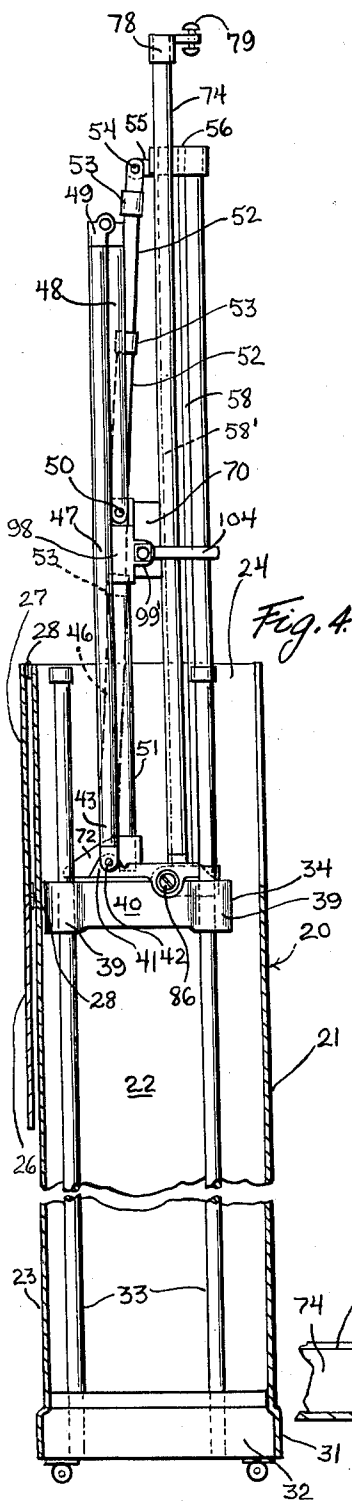
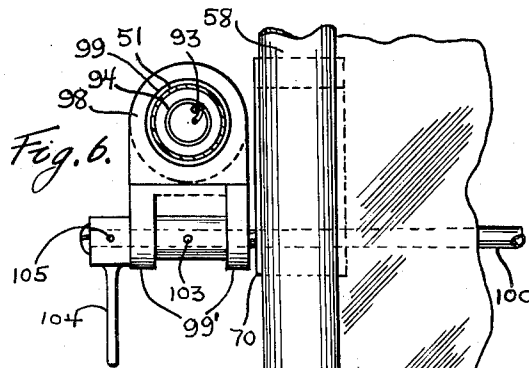
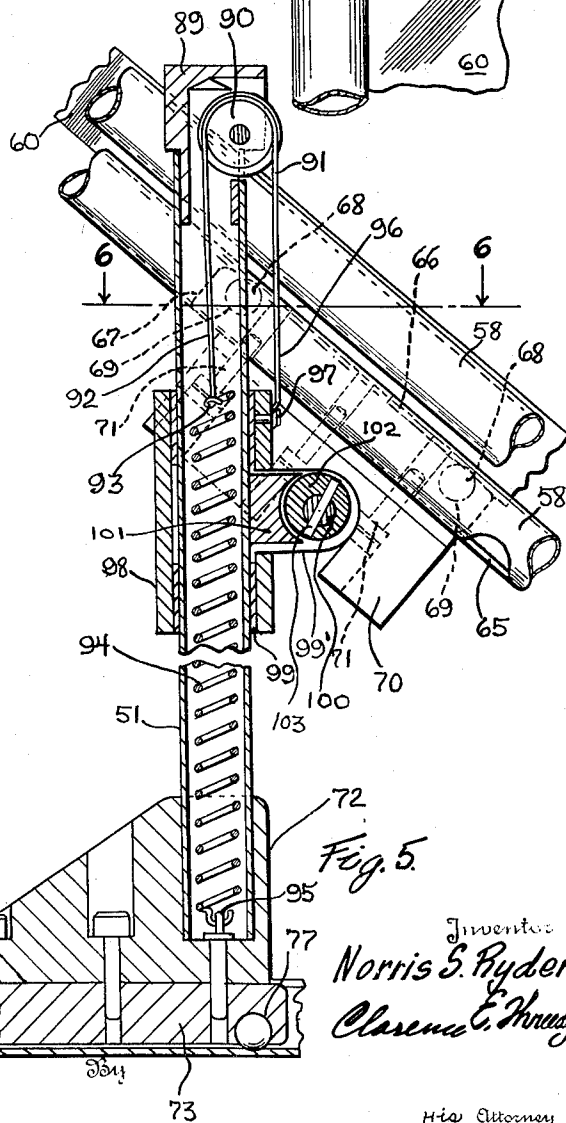
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N. S. RYDER
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4 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

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DRAFTING TABLE

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12 Claims. (Cl. 311—36)

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This invention relates to certain new and useful improvements in drafting tables and has for its principal object the provision of an improved construction of this character, which will be highly efficient in use and economical in manufacture.

More particularly, the invention relates to a table especially designed and intended for use by engineers, draftsmen, artists, students and many others. It has for a principal object the provision of a drafting table operatively associated with an enclosure whereby the table when in use may be extended from the enclosure, held in a proper adjusted position, either over a work table or by means of supporting legs independent of a work table, and when not in use be folded and positioned within the enclosure for storage pending future use thereof.

Another object of the invention is the provision of a drafting table capable of movement into and from extended position and designed to accomplish this object by relatively few parts which, when operatively associated together, are of simple operation, and which parts may be economically manufactured and expeditiously assembled.

Yet another and equally important object of the invention is the provision of a carriage for the drafting table operable in an enclosure and movable therein to and from extended position with respect thereto with ease and by manual or mechanical means.

Another and equally important object of the invention is the provision of a drafting table which when not in use may be stored away pending future use within an enclosure which may be moved about with a minimum of effort upon the part of the user.

Ancillary to the foregoing objects is the provision of a drafting board and an enclosure therefor when not in use and in which the drafting board may be rigidly and adjustably supported in a desired position for drafting purposes.

Other objects will appear hereinafter.

The invention consists in the novel combination and arrangement of parts to be hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings showing the preferred form of construction, and in which:

Fig. 1 is a perspective view of the invention;

Fig. 2 is a side elevational view of the same in distended position;

Fig. 3 is a sectional detail view taken substantially on line 3—3 of Fig. 1;

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Fig. 4 is a vertical cross sectional detail view of the invention showing the parts thereof in partially extended position;

Fig. 5 is a fragmentary sectional detail view taken substantially on line 5—5 of Fig. 3;

Fig. 6 is a sectional detail view taken substantially on line 6—6 of Fig. 5;

Fig. 7 is a plan view of a carriage block embodied in the invention;

Fig. 8 is a fragmentary side view of the same;

Fig. 9 is a fragmentary end view of the same; and

Fig. 10 is a diagrammatical detail view illustrating a suggested form of mechanical elevating means embodied in the invention.

The several objects of my invention are accomplished by the preferred form of construction as shown in the accompanying drawings.

As an object of the invention is to provide a drafting board which may be expeditiously and with the minimum degree of effort moved into a desired drafting position and moved to a position within an enclosure, it is most desirable that these objects be accomplished by a structure having minimum simplicity and parts.

To accomplish this and the several other objects of my invention, I provide an enclosure 20 in the form of a substantially box-like housing comprising a front wall 21, end walls 22 and a back wall 23. This enclosure may be formed of any approved material and the walls thereof may be secured together by any desirable means.

The front wall 21 is of a height less than the height of the rear and back walls 22 and 23 respectively whereby to provide at the upper end of the enclosure 20 an entrance 24.

When the drafting board and its supporting structure, hereinafter more fully described, are confined within the enclosure 20, the entrance 24 is closed by a suitable cover 25 comprising an outer section 26 adapted to constitute the upper extension of the front wall 21. This cover 25 further comprises an intermediate section 27 hinged as at 28 to adjacent edge portions 29 and 30 respectively of the outer section 26 and the rear wall 23.

If desirable, a suitable lock or latch may be provided for locking or latching the cover in a closed position. This lock or latch has not been shown or described because it constitutes no part of the present invention. Any approved lock or latch may be employed.

The enclosure 20 provides a base 31. Within this base 31, at opposite ends thereof, are fixed base blocks 32. Extending upwardly from these

base blocks 32 are guide rods 33, there being two of such guide rods 33 to each block. These guide rods are preferably cylindrical in cross section, however they may be of any approved shape and formed of such material as will best serve the purpose. These guide rods 33 are arranged in pairs and upon each pair of guide rods, there is slidably arranged a carriage block 34.

These carriage blocks 34 each comprise side body portions 35, providing parallel fingers 36. The fingers 36 of one carriage block are rigidly connected together with the fingers 36 of the companion carriage block by means of side bars 37, the connection being accomplished by means of suitable connecting elements such as screw bolts 38 or the like.

As the carriage blocks are both of the same shape and construction, the following description with reference to one of such blocks will be equally applicable to the other.

In this connection, adjacent corners of the block 34 provide bearing sleeves 39, through which are slidably received the guide rods 33. On the upper face of the block 34 and inwardly of the outer edge 40 thereof is a connecting lug 41 to which is pivotally connected as at 42 one end portion of an extension arm 43.

Inwardly of this lug 41 is a similar connecting lug 44 and to this lug 44 is pivotally connected as at 45 one end portion of a telescoping arm 46.

The extension arm 43 comprises two sections 47 and 48 hingedly connected as at 49. The opposite end portion of the extension arm 43 is pivotally connected as at 50 to a post 51 hereinafter more fully described.

The telescoping arm 46 comprises sections 52 preferably tubular in form so that they may telescope when moved into collapsed position with respect to each other. It is desirable that some means be provided for latching these sections 52 in adjusted position with respect to each other. In this regard, I have provided suitable clamp screws 53. These clamps may be of any approved construction such as will bind the sections 52 in an adjusted position.

The outer-most section of the sections 52 is pivotally connected as at 54 to a bracket 55 preferably formed as a part of a cap 56.

This cap 56 has fitted therein the opposite end portions 57 of parallel bars 58 and 58'.

In practice, these bars 58 are arranged in pairs with one pair extending parallel with respect to each of the edge portions 59 of a drafting board 60, the drafting board 60 being supported between the parallel bars 58 and 58' with its longitudinal edge portions 61 resting upon supporting plates 62, secured in any suitable manner to the caps 56 and the caps 63, the latter mounted upon the opposite end portions 64 of the bars 58 and 58'.

The bars 58' are disposed beneath the bars 58 and these bars 58' are provided with longitudinal slots 65.

Movably arranged in each of these bars 58' is a carriage 66 comprising a carriage plate 67 having a cross sectional configuration corresponding to the cross sectional shape of the bar 58' and supporting suitable bearing balls 68 mounted in suitable races 69, whereby the carriage plate 67 will have freedom of movement within the bar 58'.

This carriage plate 67 has a mounting block 70 which extends through the slot 65 and is secured to the carriage plate 67 by suitable bolts 71.

The post 51, Figs. 1 and 5, extends from a mounting block 72 including a carriage plate 73

similar to the carriage plate 67 and mounted for movement in a track arm 74. This track arm 74 has a longitudinally extending slot 75, through which the block 72 moves. The carriage plate 73 includes suitable ball bearings 76 mounted in suitable races 77 for purpose of free movement.

This track arm 74, at its outer end portion, carries a cap 78 having a suitable clamp screw 79 adapted to bear against an adjacent edge 80 of a work table or desk 81 or other like fixture.

The opposite end portion of this track arm 74 has fixedly secured thereto a connecting link 82 having a slot 83 in alignment with the slot 75 of the track arm 74. The connecting link 82 provides spaced bosses 84 and threaded into these bosses 84, through opposite lugs 85, provided by the block 34, are pivot screws 86.

In alignment with the slot 83 of the connecting link 82 is a socket 87 into which the carriage plate 73 is adapted to be moved when this carriage plate 73 is projected from the inner end portion of the track arm 74 into the position shown in Figs. 7 to 9 inclusive, for reasons hereinafter more apparent.

The mounting blocks 72 are connected together by a cross rod 88, Fig. 1.

The post 51 bears a cap 89 and this cap rotatably supports a pulley wheel 90, around which passes a connecting cord or wire 91. The end portion 92 of this connecting cord 91 is connected as at 93 to an end portion of a spring 94, the opposite end portion of the spring 94 being connected as at 95 to the block 72.

The opposite end portion 96 of this cord 91 is connected as at 97 to a sleeve 98 mounted for slidable movement upon the post 51. To insure maximum freedom of movement of the sleeve 98 relative to the post 51, an insert 99 of suitable non-frictional material is mounted in the sleeve 98.

The sleeve 98 provides spaced lugs 99'. Pivotally supported by these lugs 99' is a cross rod 100 which connects the sleeves 98 together. These cross rods 100 extend through the mounting block 70 and provide a pivotal connection between the drafting board 60 and the sleeves 98.

Means are provided for latching these mounting blocks 70 and, consequently, the drafting board 60 in an adjusted position with respect to the post 51. This means includes a brake-shoe 101 operatively engaging, Fig. 5, an eccentric 102 mounted upon the rod 100 between the lugs 99' and secured to the rod 100 by a pin 103. A suitable handle 104 is connected as at 105 to the cross rod 100.

The arrangement is such that by rotating the rod 100, the eccentric 102 will bear against the shoe 101 and releasably latch the mounting block in an adjusted position with respect to the post 51.

In the construction of my improved drafting table, if desirable, there may be provided a predetermined friction between the slidably engaging surfaces of the blocks 34 and the guide rods 33 whereby the drafting board supporting structure and the drafting board itself may be lowered and raised with, as from within the enclosure 20 or, if desired, a suitable spring balance (not shown) of any well known construction may be employed.

It may be desirable to raise and lower the drafting board supporting structure by mechanical means. Any approved mechanical means may be employed for this purpose. In Fig. 10 I have shown a suggested form of mechanical means for mechanically raising and lowering the drafting

board supporting structure. In this connection, there is provided on each of the blocks 32 an internally threaded bushing 106 adapted to have threading engagement upon a screw shaft 107, the lower end of which is rotatably connected as at 108 within sockets 109 formed in the blocks 32.

The upper end portions of each of these screw shafts 107 are provided with bevel gears 110 operatively meshing with bevel gears 111 carried by shafts 112 journaled in suitable bearings 113 extending from adjacent portions of the enclosure 20. Adjacent end portions of these shafts 112 are connected to a driven bevel gear 114 by bevel gears 115. The gear 114 is mounted upon a shaft 116 geared to a driving gear 117 by a gear 118. The driving gear 117 may be either manually operated as by a handle 119 or it may be mounted upon the shaft of an electric motor (not shown).

Fig. 2 of the drawing illustrates the drafting table confined in the enclosure 20. I will now describe the manner in which the drafting table is extended from the enclosure.

The operator first swings back the cover 25 to the position shown in Fig. 1. He then, by grasping the exposed edge portion of the drafting board (assuming that he is manually moving the supported structure from within the enclosure), elevates the table so as to cause the blocks 34 to move upwardly relative to the guide rods 33 to the position shown in Fig. 4. In this position of the blocks, the drafting board may be distended to a predetermined position such as is shown in Fig. 1. To accomplish this, the mounting blocks 72 are moved to the outer extremities of the track arm 74. In thus moving these mounting blocks 72 to this position, the arm 43 will be unfolded to dispose the sections 47 and 48 thereof in alignment to rigidly support the post 51 in the position shown in Fig. 1.

The pressure on the brake-shoes 101 is relieved to permit the sleeves 98 to be adjusted to a desired position relative to the post 51. The clamp screws 53 are loosened so as to permit the sections 52 to be extended to a desired position to support the drafting board 60 at a desired inclination with respect to the horizontal after which the clamp screws 53 are tightened so as to rigidly hold the drafting board 60 in such position. Pressure is again applied to the brake-shoes 101 to rigidly latch the sleeves 98 in adjusted position. If a work table or desk is disposed beneath the drafting board, the clamp screws 79 are adjusted to bear against the adjacent edge portions of such table or desk. If no such table or desk is employed, a suitable extension leg may be provided at the outer extremities of the track arm 74 to support the outer ends thereof. With the drafting table in this position, it is now ready for use.

To confine the drafting board in the enclosure 20, the clamp screws 53 are loosened on the arm 46 to permit the sections thereof to telescope together, after the pressure on the brake-shoes 101 has been released to permit the sleeves 98 to move relative to the post 51. These sleeves 98 are moved relative to the post 51 at a sufficient distance to allow the lower edge portion of the drafting board to clear the top surface of the work table so that when the arms 43 are folded, the operator may move the carriage plates 73 rearwardly with respect to the track arm 74 to a position upon the blocks 34 clearing the slots 75, whereupon the track arms 74 may be elevated to the position in Fig. 4, in which position the drafting table is now ready to be lowered into

the enclosure 20 either manually or by a mechanical means if the latter be employed.

From the foregoing description, it is manifest that I have provided a drafting table which when in use may occupy a storage enclosure; one which may be easily and expeditiously and with the minimum degree of effort extended from the enclosure to a desired drafting position.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

Having thus described my invention, what I claim as new and desire to protect by Letters Patent is:

1. In combination an enclosure having a hinged cover, guide members arranged in opposite corresponding end portions of said enclosure, mounting blocks slidably connected to said guide members, a drafting board, an adjustable arm comprising telescopically arranged sections connecting said board from one edge portion thereof to said mounting blocks, track members pivotally carried by said blocks and adapted to be pivoted to a horizontal position with respect to said enclosure, carriage members carried by said track members and movable longitudinally thereof for movement from said track members into socket elements provided by said blocks, posts extending upwardly from said carriage members, means for providing a slidable connection between said board and said posts, and adjustable arms having pivotal connection with said posts and said mounting blocks.

2. In combination an enclosure having a hinged cover, guide members arranged in opposite corresponding end portions of said enclosure, mounting blocks slidably connected to said guide members, a drafting board, an adjustable arm comprising telescopically arranged sections connecting said board from one edge portion thereof to said mounting blocks, track members pivotally carried by said blocks and adapted to be pivoted to a horizontal position with respect to said enclosure, carriage members carried by said track members and movable longitudinally thereof for movement from said track members into socket elements provided by said blocks, posts extending upwardly from said carriage members, means for providing a slidable pivotal connection between said board and said posts, and adjustable arms having pivotal connection with said posts and said mounting blocks.

3. In combination an enclosure having a hinged cover, guide members arranged in opposite corresponding end portions of said enclosure, mounting blocks slidably connected to said guide members, a drafting board, an adjustable arm comprising telescopically arranged sections connecting said board from one edge portion thereof to said mounting blocks, track members pivotally carried by said blocks and adapted to be pivoted to a horizontal position with respect to said enclosure, carriage members carried by said track members and movable longitudinally thereof for movement from said track members into socket elements provided by said blocks, posts extending upwardly from said carriage members, means for providing a slidable connection between said board and said posts, adjustable arms having

members and movable longitudinally thereof for movement from said track members into socket elements provided by said blocks, posts extending upwardly from said carriage members, means for providing a slidable pivotal connection between said board and said posts, adjustable arms having pivotal connection with said posts and said mounting blocks, means for releasably clamping said slidable connecting means to said posts in an adjusted position with respect to said posts, and means for balancing said slidable connecting means relative to said posts.

11. In combination an enclosure having a hinged cover, guide members arranged in opposite corresponding end portions of said enclosure, mounting blocks slidably connected to said guide members, a drafting board, an adjustable arm comprising telescopically arranged sections connecting said board from one edge portion thereof to said mounting blocks, track members pivotally carried by said blocks and adapted to be pivoted to a horizontal position with respect to said enclosure, carriage members carried by said track members and movable longitudinally thereof for movement from said track members into socket elements provided by said blocks, posts extending upwardly from said carriage members, means for providing a slidable connection between said board and said posts, adjustable arms having pivotal connection with said posts and said mounting blocks, means for releasably clamping said slidable connecting means to said posts in an adjusted position with respect to said posts, means for releasably latching said telescoping sections in adjusted position with respect to each other, and means for balancing said slidable connecting means relative to said posts.

12. In combination an enclosure having a

hinged cover, guide members arranged in opposite corresponding end portions of said enclosure, mounting blocks slidably connected to said guide members, a drafting board, an adjustable arm comprising telescopically arranged sections connecting said board from one edge portion thereof to said mounting blocks, track members pivotally carried by said blocks and adapted to be pivoted to a horizontal position with respect to said enclosure, carriage members carried by said track members and movable longitudinally thereof for movement from said track members into socket elements provided by said blocks, posts extending upwardly from said carriage members, means for providing a slidable pivotal connection between said board and said posts, adjustable arms having pivotal connection with said posts and said mounting blocks, means for releasably clamping said slidable connecting means to said posts in an adjusted position with respect to said posts, means for releasably latching said telescoping sections in adjusted position with respect to each other, and means for balancing said slidable connecting means relative to said posts.

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